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Citation for published version:

Giordano, G, Bretton, R, Calder, E, Cas, R, Gottsmann, J, Lindsay, J, Newhall, C, Pallister, J, Papale, P & Rodriguez, L 2016, 'TOWARD IAVCEI GUIDELINES ON THE ROLES AND RESPONSIBILITIES OF SCIENTISTS INVOLVED IN VOLCANIC HAZARD EVALUATION, RISK MITIGATION AND CRISIS RESPONSE', *Bulletin of Volcanology*. <https://doi.org/10.1007/s00445-016-1021-8>

Digital Object Identifier (DOI):

[10.1007/s00445-016-1021-8](https://doi.org/10.1007/s00445-016-1021-8)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

Bulletin of Volcanology

Publisher Rights Statement:

Springer-Verlag Berlin Heidelberg 2016

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TOWARD IAVCEI GUIDELINES ON THE ROLES AND RESPONSIBILITIES OF SCIENTISTS INVOLVED IN VOLCANIC HAZARD EVALUATION, RISK MITIGATION AND CRISIS RESPONSE

by the IAVCEI Task Group on Crisis Protocols¹

Foreword

The International Association for Volcanology and Chemistry of the Earth's Interior (IAVCEI), as the representative international association of scientists working on volcanic hazard evaluations and risk mitigation, promotes sustained open discussion within the scientific community of many relevant issues, including:

- how to best understand and forecast volcanic activity, the associated hazards, and contribute to risk evaluations;
- the appropriate roles and responsibilities of scientists prior to, during and after crises;
- the nature of scientists' relationships with government authorities, populations at risk, and the media;
- the manner and extent of involvement of scientists in processes that eventually lead authorities to make decisions, the extent of the liability or vulnerability of scientists to outcomes of these decisions, and the way that scientists' input may be perceived and judged by others;
- the role of national and local culture and perception of risk in both mitigation policy and communication of hazard and risk;
- the effectiveness of descriptions of forecasted volcanic phenomena and associated hazards, and of their related uncertainties;
- how to best increase the awareness, preparedness and empowerment of individuals, and society as a whole, in order to reduce the impact of volcanic phenomena on society.

In particular, IAVCEI, as a modern learned society wants to offer through its media (e.g. its website, archives, documents, recommendation notes) informative material, which can help members and others to fulfil these roles and responsibilities. In particular, scientists have a role in protecting populations and societies from harm due to volcanic phenomena, within the context of, and being cognizant of, diverse cultural needs and settings.

Furthermore, IAVCEI wants to develop frameworks within which relationships and communication with local communities, media and authorities can be fostered and improved.

Principles, recommendations and current actions

1 – IAVCEI complies with UN-ISDR guidelines on natural hazards and risk management (<http://www.unisdr.org/we/coordinate/hfa>; <http://www.preventionweb.net/posthfa/>), and stresses that scientific activities in this regard, with the purpose of evaluating volcanic hazards and contributing to mitigation of risks, should address with highest priority those phenomena with potentially the highest impact on lives, and should also give high priority to protecting livelihoods, cultural, environmental and property assets. No discrimination should exist in protecting lives based on ethnic, gender, religious, economic, cultural or any other grounds.

2 – IAVCEI reminds scientists, whether they are directly involved with governmental agencies and civil protection authorities or not, that their conduct and actions, both during inter-eruptive periods and during volcanic crises, can have broad and potentially unintended consequences. Such actions could and may be subject to public and/or legal scrutiny. Therefore, IAVCEI recommends that scientists: i) fulfil their responsibilities in good faith and to the best of their abilities, working to facilitate informed decisions by civil-protection authorities and at-risk individuals; ii) safeguard not only their own legal status, but also the status and credibility of their advice which should be independent, neutral, objective, unbiased and value-free; iii) when communicating volcano hazard information be aware and respectful of applicable protocols and procedures, and all relevant legal requirements and cultural issues.

3 – IAVCEI advises scientists to fully evaluate whether the environment within which they work is subject to external or internal pressures on the outcomes of the volcanic hazard evaluations that may deviate from the principles stated in point 1, for political, economic or other reasons.

4 – IAVCEI, while acknowledging that different cultures require different types of civil-protection chains of command, endorses structures that allow:

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- a clear definition of the roles and responsibilities of the scientific community, and specifically of scientists from volcano observatories, government agencies or institutions, universities or consultancies;
- a clear distinction between scientific activities that inform civil-protection decisions (such as the preparation of a volcanic hazard evaluation or a volcanic hazard map) and civil-protection decisions and actions themselves;
- the direct involvement of scientists in risk evaluation, management and civil-protection actions only when based on a common agreement and acceptance of respective roles and responsibilities;
- a clear understanding of roles and responsibilities of scientists in communicating hazards and, where and if applicable, risks;
- strong and effective working collaborations between scientists from volcano observatories and the wider scientific communities, as well as government officials, community representatives and the media, based on full respect and acknowledgement of the role of volcano observatories as the primary source of data and information on volcanic hazards.

5 – IAVCEI promotes dialogue at all levels within the local scientific community and among stakeholders during inter-eruptive periods. Developing a co-operative, united, and well-trained local scientific and stakeholder community is the strongest and most effective way to deal with volcanic crises. Toward this aim, IAVCEI promotes the implementation of training programs that focus on fully collaborative approaches that involve inter-disciplinary teams of scientists, civil-protection authorities, government officials, community representatives and the media.

6 – IAVCEI at the same time supports international research cooperation, so that during volcanic crises, local scientific communities can immediately find external support, if needed. IAVCEI encourages integration and collaboration of scientists before, during and immediately after volcanic crises. International and independent national scientists should seek out and co-operate with the local scientific organization that is officially responsible for monitoring and hazard evaluation. This works if the official team is open to independent input, and independent/international scientists agree to be part of the official team rather than competing with it.

7 - IAVCEI supports open sharing of monitoring and other scientific databases, with due respect of national laws and rules for discretion with regards to sensitive data. IAVCEI at the same time cautions scientists not to use such open-access data improperly. An example of improper use would be to use these data to undermine those charged with the responsibility for hazard management during crises. For an example of the implications of this type of situation, see IAVCEI Subcommittee for Crisis Protocols (1999).

8 – IAVCEI supports efforts aimed at developing a range of modes for communicating volcanic hazards (e.g. hazard maps, hazard evaluation reports, etc.) that are rigorous, fit for purpose and end-user friendly, i.e. clear, effective, complete, understandable and referenced. That information must be founded on robust science, and the results must be fully accountable and defensible. IAVCEI accepts that such modes of communication cannot be standardised, because cultural diversity and disparate settings require different approaches. At the same time IAVCEI promotes sharing of best practices to form a common framework and background for further developments of volcanic hazard communication activities.

9 – IAVCEI promotes the publication and sharing of best practices in hazard studies and crisis management. Best practices, while non-prescriptive, are essential bench-marks for scientists to match or surpass. At the same time, IAVCEI encourages publication and sharing of both successful and unsuccessful cases related to hazard evaluation and crisis management so that lessons can be learnt by the whole volcanological community from past experience.

10 – IAVCEI promotes inter- and multi-disciplinary studies and scientific programs aimed at improving the understanding of the multi-faceted nature of volcanic environments, their hazards, and volcanic crisis management, including the scientific aspects and also the social, cultural, political, economic and legal perspectives.

11 – IAVCEI acknowledges that, for the effectiveness of civil-protection actions prior to and during volcanic crises, the stakeholders playing fundamental roles, aside the scientific community, include governmental and civil administrations, the public and the media. IAVCEI notes that there have been cases where lack of proper communication and reciprocal understanding among stakeholders and with the scientific community has greatly increased the toll of human lives and other losses in volcanic crises. IAVCEI promotes all initiatives aimed at strengthening relationships with all stakeholders involved in, and affected by volcanic crises, particularly initiatives aimed at promoting mutual understanding of the respective needs and points of view. IAVCEI acknowledges that scientists can learn a lot from local communities living with volcanoes. In particular, IAVCEI notes that, in the absence

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of ongoing collaborative activities during inter-eruptive periods, it will be harder to develop a full and reciprocal understanding once a crisis commences, thereby undermining the subsequent effectiveness of civil protection actions.

12 – IAVCEI promotes the public dissemination of scientific knowledge about hazards, risks, and their inherently associated uncertainties. IAVCEI acknowledges that recipients may have different cultural views and perceptions of volcanic phenomena, and associated hazards and risks. IAVCEI advises scientists to not simply impose their own views. IAVCEI supports exchange programs aimed at facilitating mutual understanding.

13 – IAVCEI promotes initiatives aimed at the empowerment of people and societies against the consequences of volcanic disasters. These initiatives include scenario-based or other types of emergency simulations and exercises.

14 – IAVCEI endorses initiatives by its members through dedicated commissions and their websites, aimed at developing, publicizing and archiving documentation of volcanic-hazard studies and practices, on any of the topics outlined in previous points. These activities are aimed at facilitating access to relevant informative material by members and other interested parties.

Further Actions

Based on the above Principles and Recommendations, IAVCEI urges its members, through networking of Commissions, workgroups and taskgroups, to:

- 1) create and maintain open-access checklists and guidance notes that may serve as non-prescriptive assistance for scientists;
- 2) use and populate the IAVCEI website(s) with relevant informative and scientific material;
- 3) implement activities aimed at fulfilling the aspirations presented in the Principles and Recommendations above, especially regarding the improvement of relationships and mutual understanding with all stakeholders involved in civil-protection activities and operations.

IAVCEI acknowledges that a lot of work on these matters has already been done by many dedicated workgroups, research projects and individuals, and invites them to share the main outcomes via IAVCEI media.

Acknowledgements

This document is the result of an on-going discussion in the wide volcanological community and benefited of brainstorming with many colleagues mostly after the 2013 IAVCEI General Assembly at Kagoshima and the 2014 Cities on Volcanoes Conference at Yogyakarta, before being publicly presented at the 2015 IUGG General Assembly in Prague. In particular we wish to thank Joan Martí, Nobuo Geshi, Micol Todesco, Michael Ort, Gill Jolly, Carina Fearnley who at various stages significantly contributed to the discussion condensed in this document.

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